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ERRATA

Page 14, 5th line from bottom of page:
Pl. III should read Pl. II.

Page 28, line 10:
page 18 should read page 16.

Plate V, legend should read:
GROUP OF JARS OF VARIOUS PERIODS

Plate VI, legend should read:
JAR OF TRANSITIONAL STYLE

Plate X, legend should read:
JAR OF TRANSITIONAL STYLE

Plate XII, legend should read:
OBJECTS FROM VARIOUS GROUPS

Plate XVII, legend should read:
JARS OF VARIOUS PERIODS

Plate XX, legend should read:
VESSELS OF VARIOUS PERIODS

ABBREVIATIONS

The following abbreviations have been employed in the text.

A.J.A.	American Journal of Archæology.
B.S.A.	Annual of the British School at Athens.
Gournia	Gournia, The American Exploration Society, Philadelphia, 1909.
Isopata	The Prehistoric Tombs of Knossos, by A. J. Evans.
Mochlos	Explorations on the Island of Mochlos, American School of Classical Studies, 1912, by R. B. Seager.
Phylakopi	Phylakopi, Society for the Promotion of Hellenic Studies, London, 1904.
Pseira	Excavations on the Island of Pseira, Crete, Anthropological Publications, The Museum, University of Pennsylvania, Vol. III, No. 1.
Sphoungaras	Excavations in Eastern Crete, Sphoungaras, Anthropological Publications, The Museum, University of Pennsylvania, Vol. III, No. 2.
Vasiliki	Excavations at Vasiliki, 1904 and 1906, Transactions, Department of Archæology, University of Pennsylvania, Vol. I, Part III, 1905, and Vol. II, Part II, 1907.
E.M.I.	Early Minoan I.
E.M.II.	Early Minoan II.
E.M.III.	Early Minoan III.
M.M.I.	Middle Minoan I.
M.M.II.	Middle Minoan II.
M M.III.	Middle Minoan III.
L.M.I.	Late Minoan I.
L.M.II.	Late Minoan II.
L.M.III.	Late Minoan III.

THE CEMETERY OF PACHYAMMOS, CRETE

In Eastern Crete at the head of the gulf of Mirabello lies the Isthmus of Hierapetra. The mountain chains of the Lasithi group and the Triptite range, further to the east, are sharply divided at this point by an almost level valley which stretches from the northern coast on the gulf of Mirabello across to the plain of Hierapetra facing the southern or Libyan sea. The island is only about seven miles wide at this point and this narrow valley must have formed in all periods an important highway between the north and south coasts. To a maritime people this must have been especially useful as the voyage by sea to and from Hierapetra around the eastern end of the island with its far-flung rocky capes was, at best, a hazardous one in this land of sudden gales where places of shelter for shipping are so few and far between.

The Isthmus offered an easy means of avoiding this circuit as merchandise could be carried across from north to south or vice versa and re-shipped to its final destination.

The Hierapetra plain is the most fertile portion of Eastern Crete and, as it lies at the point of the island nearest to Egypt, must have had a considerable amount of trade with the latter. The Greek coinage of Hierapetra and the numerous remains still extant of the Roman city show its importance in the classical period when it ranked as the chief town of this part of the island.

It seems clear from our knowledge of the Minoan civilization that, in certain stages of its development, it was in close touch with Egypt. From Egyptian art it borrowed much and,

in turn, gave much. We find both Cretan objects on Egyptian sites and vice versa. It is therefore not unlikely that, in Minoan times, this trade route across the Isthmus played its part in the communication between the two countries which would account for the numerous Minoan settlements that are constantly coming to light at the head of the gulf of Mirabello.

In 1902–1904 Mrs. Hawes and her expedition excavated the prosperous and well-preserved town site of Gournia on the coast and another site, Vasiliki, which lies a mile or so inland on the Isthmus.

In 1907 Pseira, a settlement on a small rocky island lying in the gulf opposite the Isthmus, was cleared and since then evidence has accumulated which shows that villages of more or less importance existed in the Kavusi valley, at Vraïka, Monasteraki and Pachyammos with which last this report is chiefly concerned.

These sites, Gournia, Pachyammos, Vasiliki, Monasteraki, Vraïka and Kavusi all lie within a radius of three miles on the northern end of the Isthmus while Pseira, the island site, is also close at hand. The land along this part of the coast is not particularly fertile and suffers greatly from winter storms which drive the salt spray far inland thus blighting the crops. Today only three of these sites are inhabited villages, Kavusi, Vasiliki and Monasteraki. The first two contain roughly 800 and 400 people respectively. Monasteraki can boast of only a dozen families. Pachyammos is the modern port and when I saw it first in 1903 it consisted of a few warehouses and a couple of roadside inns though it now contains ten dwelling houses.

It is clear therefore that the present day population of this district is less than in Minoan times and the fertility of the soil does not seem to warrant a larger one. We must infer that its

ancient importance was principally due to a road crossing the island at this point more useful in the days of small sailing craft than in our era of steamships.

There is no real harbor at the northern end of the Isthmus. The Tholos of Kavusi and Gournia are both open roadsteads. The rocky point at Pachyammos offers a partial shelter for small craft in all but the worst storms. In Minoan times, before the subsidence of the coast so noticeable in this part of the island, the shelter may have been better as the reef of rock stretching out from the end of the point may have then broken the force of the waves whereas today it is almost completely submerged. At any rate, Pachyammos, poor harbor as it is, must have been the principal northern port of the Isthmus and it has always seemed odd that there were such scanty traces of a Minoan settlement at this point.

The shore at Gournia, which lies about twenty minutes walk to the west of Pachyammos over two hilly ridges, could offer no shelter of any sort for shipping. In Minoan times Gournia was the principal town of the district and, for lack of anything better, seemed to have been the starting point of our supposed trade route across the Isthmus.

Owing to recent discoveries we can now correct this error and Pachyammos assumes its natural position as a place of importance in ancient times and the site of a Minoan port.

In October, 1913, the northern villages of the Isthmus suffered severely from one of the torrential rains which sometimes visit the island of Crete. In such a bare mountainous land these storms can work a vast amount of damage in a very short space of time. Owing to the lack of vegetation on the mountain sides, there is nothing to check the torrents of water which, in their struggle to reach the sea, tear great channels

through the terraced fields and the level land along the coast. A similar storm at Zakro in Crete is graphically described by Mr. Hogarth in his "Accidents of an Antiquarian's Life."

In the storm of 1913 the hamlet of Pachyammos suffered severely. The water rose to the height of a metre in the low-lying houses and only by tearing down a long piece of wall between the two village inns were the houses saved from destruction. The mass of water thus released tore its way to the sea some 150 metres distant leaving a broad channel twenty metres in width and a metre in depth to mark its course. When the water finally subsided it was seen that part of a Minoan cemetery of jar-burials had been brought to light in this channel. Some twelve jars were standing along the edge of the eastern bank formed by the torrent while fragments of others strewing the ground showed that a certain number had been broken up by the rush of water.

As soon as the weather permitted, excavations were begun which lasted from April 8 to May 9, 1914. On my return to Crete work was resumed for a fortnight in January, 1915, in order to make sure that the limits of the cemetery had been reached and that no more jars remained in the vicinity.

This burial ground lies in the broad sand beach which gives Pachyammos (Deep Sand) its name. The space occupied by the cemetery was roughly a parallelogram, 150 metres long by 40 metres wide, and lying some 20 metres back from the sea.

The cemetery furnished additional proof to that already gained at Pseira (Pseira, p. 16) and Mochlos of the subsidence of this part of the Cretan coast. Fully half the burial jars were found standing in sea-water and it seems hardly probable that this was the case at the time of interment. Every one knows the difficulty of digging a pit in wet sand and it is not

likely that the Minoans undertook the difficult task of placing their jars in holes which filled with sea-water when ten metres further back from the sea they would have had a dry sandy soil in which to place their dead.

The cemetery seems to have continued in use from very early times down to the L. M. I period. The discovery of child burials in E. M. III pots, a small oval larnax of apparently the same date and a few stone vases of the early type sufficed to show that the first burials were contemporary with those discovered at Mochlos, Pseira and the Gournia cemetery at Sphoungaras. (Seager, Mochlos, and Hall, Sphoungaras.) Whereas at Mochlos and Pseira the greater number of graves dated from the E. M. period, here the M. M. I, M. M. III and early L. M. I periods play the most important part in the history of the cemetery. The Sphoungaras burials also dated chiefly from these same periods and there one was struck by the paucity of small objects placed with the dead in contrast with the profusion of jewelry, weapons and vases that accompany Early Minoan interments. (Sphoungaras, p. 66.) In point of small objects the Pachyammos cemetery was even less productive and the majority of burial jars contained nothing but fragmentary human remains. In a few cases some clay cups and small vases were found in the jars, but this was the exception rather than the rule. Unlike Sphoungaras no seal-stones occurred with any of the interments and yet, judging by the quality of the burial jars themselves, one would have supposed the people buried at Pachyammos to have been superior in point of worldly wealth to those buried at Sphoungaras.

The Pachyammos cemetery produced in all 213 burial jars and six larnakes, whereas at Sphoungaras only 150 jars and one larnax were found, but the latter site had suffered more

from the action of time and denudation of the soil than was the case at Pachyammos.

There seemed to have been no rule as to the depth at which the jars were placed. Some were found within 20 centimetres of the surface, others at a depth of 2.50 metres which would lead one to suppose that the question of depth depended solely on the energy or wishes of the families of the deceased.

The digging in the soft beach sand was extremely easy until the water level was reached. Below this level work was very difficult as constant bailing was necessary and the falling in of the soft sand banks delayed progress. In many places below the water level the sand around the jars, through some chemical action, had hardened into a stony formation and it required much care and patience on the part of the workmen to extract the jar from its hard bed without breakage. The clay of the jars, after so many centuries of dampness, was very friable and it is remarkable that any of them hung together. Strangely enough, in most cases, painted designs were remarkably well preserved in spite of the wet and offered, in this respect, a great contrast to the dry hillside cemeteries of Mochlos, Pseira and Sphoungaras where the painted surfaces of the jars and vases were usually much destroyed.

The cemetery of Pachyammos came as a complete surprise as there are no traces of an extensive town site in the neighborhood. The soil of the hill of Alatzo Mouri, which rises above the warehouses of the little port, is filled with Minoan potsherds but there are no signs of house walls. This hillside has been much denuded and it is possible that the stones from the early houses may have been used for modern field walls though there are not enough of these to account for the disappearance of the

entire house walls of a fairly large village. The only other possible site for the town would be in the valley lying back from the sea behind the cemetery. Here the soil is deep and there would naturally be few remains on the surface. Local tradition points to this spot and various peasants have told me that their fathers and grandfathers had turned up vases and weapons in these fields in former years.

One of the most noticeable features of the cemetery is the evidence of the utter disregard of the Minoans for the graves of their forebears. It was a common occurrence to find a group of burial jars broken and tumbled about in the greatest confusion and upright in the midst of the wreckage an unbroken jar, the placing of which was responsible for the destruction of the earlier interments. The Pachyammos cemetery did not offer such good evidence as that of Sphoungaras for the method of placing the bodies in the jars. At Pachyammos the skeletal remains were of the most fragmentary nature, but what little evidence could be gathered tended to show that, as at Sphoungaras (Sphoungaras, p. 61) the body was placed in a sitting posture, the knees trussed up under the chin and the arms doubled back against the body.

The burials were primary burials, that is to say, the body had been placed in the jar shortly after death. In the case of secondary interments the body is first allowed to decay and when the flesh has quite disappeared the dry bones are collected and given a final burial.

The skeletal remains at Sphoungaras showed clearly that the bodies were placed in the jars with the head downward. The jar was then placed in the ground bottom up so that the corpse occupied a sitting or rather a crouching position.

Very few skulls could be saved and from the entire cemetery there are only four examples.

In these cemeteries one is constantly struck by the small size of the jars used for interments and in many cases it is difficult to understand how they could have contained an adult body although we know that the Minoans were a small boned race with a low average stature. Of course many of the smaller jars probably contained the bodies of children but the proportion of small jars is very great and in only one case was a jar found capable of containing a body of a really large person. In a few cases a jar with a narrow neck had had the rim carefully chipped away to allow more room for the insertion of the corpse but this was the exception rather than the rule. I think it will probably be found that, in many cases, the hip bones and the collar bones were intentionally broken in order to insert bodies into jars of the type shown in Pl. XVI, No. XII, C, whereas with jars like those of Pl. II, No. II, a, this would not have been necessary as we proved by experiments on our workmen at Sphoungaras. (Sphoungaras, p. 61.)

Mrs. Dohan (Miss Hall) suggests (Sphoungaras, p. 62) that the bodies were probably trussed up immediately after death or perhaps even before death had actually taken place.

At Pachyammos in no instance were the jars found bedded on a layer of beach pebbles as was so often the case at Sphoungaras. (Sphoungaras, p. 59.) In many cases pithoi were found neatly built around with large stones to hold them more securely in position.

The jars often occurred in groups of from three to five or more which would lead one to suppose that each group might represent the various members of a single family. This may have been the case in some instances but often the jars of

a group belonged to widely different periods so that it would be unsafe to attach much importance to this grouping which must sometimes have been accidental.

As far as could be seen there was nothing above the jars in the surface soil to mark their position and if any such mark ever had existed it was probably of wood or other perishable material. It was either owing to the absence of any mark at all or to its perishable nature that the later interments caused such havoc among the earlier burials. As I have said before, the Minoan gravedigger was no respecter of rights and once his pit was begun he carried it down to the desired depth irrespective of the fact that he had happened to start his work directly over ground already occupied by earlier burials. In one case an intrusive child burial had been placed in a jar already containing an older interment. The bottom of the jar had been broken in and, without removing it from the soil, the child's corpse was shoved in at the broken end which was then covered by a large fragment of broken pottery.

The small oval tubs or larnakes which had tightly fitting covers were placed in the ground in an upright position but oddly enough the large oval and square larnakes, equally possessed of covers, were put in upside down. As at Sphoungaras (Sphoungaras, p. 60), it was clear that the Minoans did not always give their best jars for the burial of their dead and if the household happened to possess a damaged specimen it was considered quite good enough for a coffin. Thus one found jars lacking parts of the rim, handles missing and in several cases the bottom half of a previously broken pithos was used to cover a child's body.

There are some ten or twelve different types of pithoi represented in the cemetery but all of them are commonly to

be found as store jars in Minoan house ruins with the exception of those noted at Sphoungaras (Sphoungaras, Fig. 36), and shown here in Pl. II, No. II, a. This type, to my knowledge, has not been found on any of the town sites in this neighborhood and was probably intended solely for burial purposes for which its shape is peculiarly suited.

The decoration of the painted jars varied according to their date but one type of decoration, if it can be so called, ran through all the periods represented in the cemetery. This is the drip pattern, Plates V and XVI, always a great favorite in the history of Minoan ceramics. It occurred on 78 of the 213 pithoi found in the cemetery. They were associated with burial groups of all dates from the Early Minoan to the Late Minoan periods. This style was noted at Vasiliki in Early Minoan context (Excavations at Vasiliki, 1904, p. 11) and has perhaps the right to claim the longest life of any type of Minoan decorative design as no other can be traced through so many successive periods.

It is difficult to assign burial jars from a cemetery of this sort to their proper periods. It is almost impossible to say whether an unpainted pithos, neither containing nor associated with any small objects, is of Early, Middle, or Late Minoan date. So far no careful attempt has been made to classify pithoi according to their shape alone and until this has been done one has no criterion by which to judge them. Of these unpainted pithoi the only type which it seemed possible to date, both at Sphoungaras and Pachyammos, is that shown in Pl. III which appears to belong definitely to the M. M. III and L. M. I periods and to represent the closing stage in the history of these two cemeteries. It is this type that is so often responsible for the havoc wrought among the Early and Middle

Minoan burials and for that reason was always regarded with considerable disfavor during the excavation of the cemetery.

The dating of the painted jars is much easier as in most cases both the paint and style of decoration enable one to assign them to their proper place in the chronological sequence of Minoan ceramics with a fair degree of certainty. The most difficult question is to distinguish between the jars of the M. M. III and L. M. I periods as here the dividing line is not clearly defined. I think it would be advisable to recast these two periods using as a line of demarcation between them the marked decrease in the use of white paint as a superadded color for picking out the details of a dark design on a light ground. The use of the Late Minoan red paint is another good means of distinguishing L. M. I from M. M. III vases as this red is of a very different quality from that used in the Middle Minoan period.

I have not attempted to give a description of all the pithoi found in the cemetery. The majority of them are without any especial interest so that in the following account I have mentioned only those which, either by their decoration, shape or context, deserve notice.

As far as possible I have dealt with the jars according to the groups in which they were found. In the following catalogue these groups are represented by Roman numerals and the individual jars of each group are lettered, *i. e.* No. XI, b, is jar b of group XI. For the sake of convenience in cases where a jar was found alone, not associated with a definite group, I have given it a Roman numeral to itself.

I. The first group of interest contained the M. M. I jar shown in Pl. I, No. I, a. It was found to overlie the small E. M. III pot, No. I, b, of Pl. II, which contained the well

preserved skeleton of a small infant and a cup of coarse clay. Near at hand, on a level with the M. M. I jar, lay the oval larnax of Pl. III and a small M. M. I pithos similar to those shown in Pl. XI. The larnax has a very primitive look. It is made of coarse clay and bears traces of a design which definitely dates it as belonging to the M. M. I period. This design is identical with that shown on the M. M. I jars in Pl. XI and is applied in dark paint on the light ground of the clay. A larnax of similar shape was found some years ago at Stavroménos near Candia in a M. M. I grave and thus far larnakes of this oval type have not been found in either M. M. III or L. M. I deposits. The two M. M. I jars of this group are examples of a style of decoration characteristic of the period. (Pseira, p. 19, Fig. 4.) (Sphoungaras p. 60, Fig. 32.) Near this group stood the fine M. M. III jar of Plates I and IV, No. I, d. It is a good example of the final stages of the light on dark style and the design of shell spirals shows strongly the influence of the succeeding L. M. I period. (See L. M. I jar from Mochlos, A. J. A., Vol. XIII, 1909, Pl. XI.) The marbled pattern of white paint on the base is occasionally met with in the Middle Minoan period both in the dark on light and light on dark wares. This pattern is evidently meant to imitate the breccia used for stone vases. (Pseira, Pl. VIII.) The wreath on the shoulder is very characteristic of the later Palace Style pottery of the L. M. II period. (Isopata, Pl. C, 1.) There are scallops of white paint around the base, the neck and the rim and wavy white lines on the upper part of the latter. M. M. III jars of similar type were found at Sphoungaras. (Sphoungaras, p. 62, Fig. 34, and p. 63, Fig. 35.)

II. The next group contained two broken unpainted pithoi of the type shown in Pl. II, No. II, a, and several small pithoi

covered with drip pattern of the type of those shown in Pl. V, Nos. 1, 3, 5. Three of these jars contained unpainted L. M. I cups of the ordinary handleless type. (Gournia, Pl. II, No. 13.)

III. The jar of Plates I and VI, No. III, was found standing by itself. The design is a curious one and probably belongs to the border line between the M. M. III and L. M. I periods as it shares the characteristics of both the light on dark and dark on light styles of these two periods. The cross-shaped masses of dark paint on the broad buff band about the middle of the jar evidently represent a fully opened blossom. The centers of these blossoms are picked out by circles of white paint and white lines and dots outline the edges of the petals. On the dark paint of the shoulder is a narrow band of white spirals passing just under the handles. There may have been another similar band higher up but the painted surface of this portion of the jar is very badly preserved. There are thin white lines around the base which is covered with dark paint.

IV. The next group contained five jars all buried at a considerable depth. Three of these bear the drip pattern, one is unpainted, type of Pl. II, No. II, a, and the fifth is the jar of Pl. I, No. IV, a, which dates from early in the L. M. I period. The design of marguerites is frequently met with in this period. (Gournia, Pl. VIII, No. 21.) (Sphoungaras, p. 67, Fig. 39.) Like the jar Pl. I, No. III the blossoms show signs of having been picked out in white and there was a similar band of white spirals on the shoulder. The body of this jar is covered with a thin coat of marbled brown paint. In the surface soil over this group stood the small pithos of Pl. XVI, No. IV, b, which is chiefly noticeable for the spout at the base, an additional proof

that many of these jars were primarily intended for household use.

V. A small drip pattern pithos contained two cups, one of a low open type covered with mottled red paint and a small grey and white marble bowl. (See Mochlos, Pl. IX, No. III, a.) One can not date this pithos with any certainty but the stone bowl would appear to belong to either the E. M. III or M. M. I periods.

VI. This group contained an amphora of coarse clay and five pithoi, only one of which was unbroken. With the exception of a M. M. I jar, of the type of Pl. XI, they were all unpainted. With this group were found two cups of which one, covered with black paint with a band of white spirals around the rim, is shown in Pl. II, No. VI, a. Similar cups are common on all the sites in this neighborhood. (Gournia, Pl. C, No. 4.) This type which first appears late in the M. M. III period runs on into the L. M. I age.

VII. There were three jars in this group, two of which were covered with drip pattern. The third is the large unpainted pot shown in Pl. VII, No. VII. One of the drip pithoi contained a small breccia bowl. (Type of Mochlos, Pl. IX, No. III, a.) Near the other pithos and the large pot lay two steatite bowls.

These stone vases may be the remains of an Early Minoan interment. They are probably earlier in date than the jars with which they were found as the large pot, judging by the clay, would seem to belong to the L. M. I period. The two drip pithoi may be older.

VIII. Of the eight pithoi which formed this group only two are worthy of notice. One of them contained three unpainted cups of Middle Minoan date. (See Gournia, Pl. VI,

No. 3.) The other jar is that shown in Pl. VIII, No. VIII. It is not easy to date this jar exactly as it might belong to either the M. M. I or M. M. III periods. Dark designs edged with white as in this example frequently occur in the M. M. I period. (Pseira, Pl. VI, a and b.) On the other hand the clay and quality of the paint are more like those used for M. M. III pottery. The design is rather meaningless. Between the handles are groups of four circles of dark paint. Under the handles are three vertical curving bands or sprays also in dark paint. These sprays and the circles are picked out in white and there is a badly preserved band of white spirals around the neck. Around the base are dark bands edged with white.

IX. This group, which lay underneath a field wall, was composed of five much broken pithoi of various dates piled one on top of another in the greatest confusion. In the midst of the wreckage stood a sixth pithos of M. M. III or L. M. I date of the type of those shown on the left in Pl. II. This later interment was apparently responsible for the damage caused to the earlier burial jars which were broken up to make room for it. The two earliest jars are of M. M. I date of the type of those shown in Pl. XI. One of them contained two M. M. I cups of which one showed traces of a white paint design on a dark ground. The third jar, a drip pithos, contained an unpainted cup of similar date. The two best jars from this group are those shown in Plates VIII and IX, No. IX, a, and Plate X. Both of them belong to the end of the M. M. III or beginning of the L. M. I period.

The jar of Pl. IX bears a spirited design of dolphins in dark paint edged with white on a buff ground. The design of Pl. X is curious and it is hard to decide whether the artist

wished to represent an ankh-like motive or something taken from nature. The design is picked out with white paint and there is a wreath, also in white, around the neck. Both these jars are interesting examples of the period of transition linking the M. M. III and L. M. I periods. That of Pl. IX has a decided artistic merit and may not unfairly be compared with the well known flying fish and dolphin frescoes from Phylakopi (Phylakopi, Pl. III) and Knossos. (B. S. A., Vol. VIII, 1901–02, p. 58.) The latter is shown in Pl. XV.

Near this group lay the unpainted jar of Pl. XII, No. IX, c. Jars of this type often occur in M. M. III deposits and are always unpainted. This example, which was of very poor clay, contained a much corroded child's bangle of bronze. It was a perfectly plain metal hoop of which over half had disappeared owing to the action of sea-water.

X. The larnax of Pl. XII, No. X, a, was the next object to come to light (length 73 cm., width 41 cm., depth 42.05 cm.). It is made of very coarse red clay and had been placed in the soil upside down, its cover lying underneath it. The weight of the sand had long since crushed in the bottom and on clearing the larnax, no objects were found with the exception of a few teeth. This larnax is probably later in date than the oval one of Pl. III. We must nevertheless assign it to some time in the Middle Minoan period on the evidence of similar larnakes found in a M. M. I ossuary at Vasiliki in 1904. (Vasiliki, Trans. Vol. II. Pt. 2, p. 115.)

Near this larnax in the surface soil a drip pattern pithos was found standing in an upright position instead of being placed upside down as was the usual custom. A large fragment of pottery had been used as a cover for the neck. This pithos contained a small jug and a cup. The jug bears a band of

spirals in dark paint around the shoulder and a ripple design on the base. The cup which has white spirals on a dark ground resembles those shown in Pl. II, Nos. VI, a, and XIII, b. These two objects, which show both the light on dark and dark on light techniques existing side by side, date from the transitional stage between the M. M. III and L. M. I periods and could equally well belong to either of them.

XI. Near by stood the small jar of Pl. VIII, No. XI, a. It is a remarkably well preserved example of the M. M. III period. The clay is very hard and fine grained which may account for the excellent condition of the painted surface. The decoration consists of two bands of dark paint edged with white around the middle of the jar and these bands are further ornamented by a design of running loops of white paint. There are also dark bands around the rim and base with superadded bands of white.

The fine jar of Pl. XIII, No. XI, b, stood more or less by itself and seemed to belong to no well defined group. This, also, is very well preserved. The design suggests a further development of the octopus motive shown on the fine M. M. II pot found by Mr. Dawkins in the Kamares cave. (B. S. A., Vol. XIX, p. 22, and Pl. X.) Naturalism had made a great advance in the intervening period and was gradually approaching the stage when the L. M. I potters were able to produce such masterpieces of maritime decoration as the octopus jar from Gournia. (Gournia, Pl. H.) The period when vases such as the one from Gournia were produced does not seem to have been of long duration and by the L. M. II period the octopus design is degenerating. The octopus on the L. M. II vase from Isopata (Isopata, Pl. C) has reverted to a type more nearly akin to that on the burial jar which we are describing. By the L. M. III

period this design has become still more stylized and debased until it ends in two meaningless waving arms and the complete disappearance of the body of the octopus. This jar, like so many from the cemetery, appears to belong to a transitional stage between the M. M. III and L. M. I periods.

While jars such as those shown in Plates IV, XIV and XXI were still being made the dark on light technique was gradually becoming more and more popular. This octopus jar belongs to this dark on light class and, in point of time, is but slightly, if at all, later than the black and white jars just mentioned. On the other hand, judging by the paint and clay, it is more closely akin to the L. M. I wares than it is to the light on dark M. M. III vases. It, therefore, becomes a question whether we shall divide these periods on the basis of technique or from a chronological point of view. If we go by the former rule, vases like this octopus jar and those of Plates VI, IX, X and XVIII might fall into the L. M. I period, although chronologically they are of the same date as those which we have assigned to the M. M. III age.

To my mind these dark on light vases share the characteristics of both the M. M. III and L. M. I periods to such a marked degree that I have not been willing to throw them bodily into either period, but have contented myself by regarding them as a transitional stage linking the M. M. III wares to those of the L. M. I period.

On this part of the site at a very low level the E. M. III pot of Pl. XI, No. XI, c, came to light. Like many of the smaller pots, it stood upright in the sand. The white design of cross-hatched circles and lozenges filling the triangular spaces between the narrow lines of white is very characteristic of the E. M. III period. The upper half of the pot is covered with black paint, the lower half is plain buff clay.

XII. The next group comprised four jars. Two of them were painted and are shown in Pl. XIII, Nos. XII, a and b, and Pl. XIV. Both belong to the M. M. III period. In No. XII, a, the lower half of the jar is covered with black paint deeply scalloped along the upper edge. The edges of the scallops are picked out with white dots and there are two white bands near the base. Otherwise, save for a narrow dark band on the shoulder and on the rim, the jar is unpainted. The design here reproduced in the medium of clay and paint greatly resembles that found on many carved steatite vases. (Pseira, p. 35, Fig. 15, Nos. j and k.) Stone vases of this type are very common on most Minoan sites and are evidently meant to represent the blossom of a flower, possibly the common anemone.

The other pithos, Pl. XIII, No. XII, b, and Pl. XIV, is entirely covered with black paint on which a marine picture of dolphins, waves and the pebbly sea bottom is worked out in white. The dolphins fill a broad zone around the middle of the jar. Above them is the tossing surface of the sea with clouds of spray blown about by the wind. Below the dolphins is the sea floor dotted with round pebbles. There are white wreath-like designs on the neck and white scallops around the rim. The base is lacking.

This jar is particularly interesting as it shows the preliminary steps by which the highly naturalistic marine designs on L. M. I pottery were attained. In that period we have the finished product. The artist had learnt how much to leave out and how he could adapt his subject to the medium in which he was working. In this early effort the painter attempted too much. The result is that we have rather the effect of an aquarium seen through the glass front, a picture hardly adapted for vase painting. In spite of this the jar has a certain charm,

a naïveté, which attracts one with the promise of better things to come.

The fish as a decorative motive certainly dates back to the M. M. I period, to which epoch belongs a series of jugs, painted with white fish, found at Vasiliki. (Vasiliki, Trans., Vol. II, Part 2, Pl. XXX.) In these primitive examples the design is treated in a stiff, lifeless manner and there is no trace of the naturalism which we find later on. One is at once struck by the marked resemblance which the design on this jar bears to the well-known dolphin fresco from Knossos. This fresco is reproduced in Plate XV owing to the kindness of Sir Arthur Evans, who has allowed me to make use of it, although he has not yet published it himself. From various evidence he assigns it to the M. M. III period to which our burial jar belongs. The similarities are striking, particularly in the treatment of the dolphins, which in both cases show the same horizontal wavy lines running along their sides and encircling the eyes.

It is clear that the maker of the Pachyammos jar was familiar with the great frescoes which covered the walls of the Minoan palaces in the M. M. III age, and that he attempted to reproduce them as nearly as possible on his clay pots. He made his mistake in not trying to modify and adapt the fresco painter's designs to suit the medium in which he was working, a thing which the L. M. I potters succeeded in learning shortly afterward.

The two remaining jars of this group were both drip pattern pithoi, one of which is shown in Pl. XVI, No. XII, c. The moulded "spectacle" pattern on the shoulder is unusual. It was near this group that the pithos was found which contained the intrusive child burial mentioned on page 15.

XIII. This group was composed of two M. M. I pithoi and

a pithos with drip pattern. One of the Middle Minoan pithoi was of the type shown in Pl. XI. The other jar is shown in Pl. XVII, No. XIII, a. The geometrical design in dark paint on a light ground is reminiscent of the light on dark ware of the preceding E. M. III period. (Vasiliki, Trans., Vol. II, Part 2, p. 120, Fig. 3, a and b, Fig. 5, c, and Fig. 6.) Other M. M. I examples of this style were found at Vasiliki. (Vasiliki, Trans., Vol. II, Part 2, pp. 126–28, Figs. 9, 10 and 11.) The design is in dark paint on the buff ground of the clay.

The drip pattern pithos from near this group contained two clay cups, one unpainted, the other with a band of white spirals on a dark ground, Pl. II, No. XIII, b. As I have said before, cups of this type are characteristic of the end of the M. M. III period and lasted on into the L. M. I age.

XIV. There were six jars in this group. The best of these is the fine amphora shown in Pl. XVII, No. XIV, a, and Pl. XVIII. It dates from the transition between the M. M. III and L. M. I periods. The bold design of bladder-like objects, spirals and plant motives is painted in brownish paint picked out in white on a light ground. The clay is greenish in color and very coarse in quality. It is hard to say what the design is really meant for. It may be a water plant like the lotus, of which we see the blossoms on tall, waving stalks, while the bladder-like object is the flower bud which has not yet reached the open air. Curious bladder patterns are common on L. M. I jars like those found at Pseira (Pseira, p. 33, Fig. 14), Mochlos (A. J. A., 2d series, Vol. XIII, p. 298, Fig. 19) and Gournia. (Gournia, Plates IX, No. 28, a and K.) It may be that the designs on these jars are a conventionalized form of the decorative motive found on our burial amphora, but if such is the case they have lost all the vigor of the original.

The white details which decorate the dark designs on the amphora are exceedingly charming and recall the delicate embroidery which one finds on the dress of the Knossian ladies in the palace frescoes of this same period.

This amphora and the jars of Plates IV, IX, XIV and XXI are the finest objects from the entire cemetery.

Owing to the shape and the narrow neck, this amphora must have contained either the body of an infant or the bones of an adult from which the flesh had been previously removed.

The remaining jars of this group are less interesting. Two of them were unpainted pithoi of the type of those shown in Pl. II. A third was a small unpainted pithos in poor clay, much rotted. The handles of this jar are oddly placed like those on the pithos of Pl. XI, No. I, c. The fifth jar of this group is shown in Pl. XVII, No. XIV, b. It is covered with black paint bearing bands of white on the shoulder and base. On the rim are incised two groups of five chevrons. This jar appears to be of M. M. III date and stood amid the fragments of a M. M. I pithos of the type of those shown in Pl. XI which had been broken up to make room for it. The sixth and last jar from this group is the small drip pattern pithos shown in Pl. XVI, No. XIV, c.

XV. This group was a curious mixture of pithoi placed at different depths. Near the surface stood an unpainted pithos with a moulded rope pattern on the shoulder containing an unpainted L. M. I cup. The bottom of this jar was so near the surface that it had been broken away quite recently in building a field wall. Near this pithos but a little deeper stood a pithos with drip pattern and close to it, lying on its side, was a large unpainted pot containing a plain clay cup of L. M. I date. This cup and the one mentioned above are of the type commonly

classed with the L. M. I wares, though they might equally well belong to the previous period. They occur in great numbers on most Minoan sites. (Gournia, Pl. II, No. 13.)

At a still lower depth than the jars just mentioned stood the pithos of Pl. XII, No. XV, a. It lay entirely below sea level and from the rim of the jar to the surface of the beach was a depth of 2.50 m. This jar, which is of M. M. III date, was once covered with black paint and probably had some sort of white design, but of this no traces remain. It was embedded in a hard mass of solidifying sand as were most of the jars found at this depth. Near this jar at much the same depth stood the round bodied drip pattern pithos shown in Pl. XVI, No. XV, b. It contained two more unpainted L. M. I cups similar to those found in the other jars of this group. This pithos was embedded in the fragments of several earlier jars which had been broken up to make room for it.

XVI. This jar, Pl. XIX, No. XVI, which also lay very deep, bears traces of a white design on a dark ground and must belong to the M. M. III period. It is peculiar inasmuch as the spout is a false one and is not pierced through the wall of the vase. Beside it was found a small tripod of coarse red clay such as commonly occur in Minoan houses. (Gournia, Pl. II, Nos. 64, 72.) A small M. M. I amphora with white bands on a dark ground also came from this part of the site. This amphora and the tripod were too small to have served as burial jars and were evidently left there as offerings to the dead.

XVII. This group was composed of three larnakes and a pithos. The latter is similar to those of M. M. I date shown in Pl. XI. The larnakes are shown in Pl. XII, Nos. XVII, b and c, and Pl. XX, No. XVII, a. Of the three, No. XVII, a, is the most interesting. Its style of decoration, which is identical

with that found on the jars of Pl. XI, places it in the M. M. I period. These small chests all seem to have been provided with tightly fitting covers. (See also No. XVII, c.) Nothing was found inside this chest, as the bones, probably those of a child, had quite disappeared. It stood upright in the sand, although the large larnax of Pl. XII, No. XVII, b, which lay close beside it, had been buried upside down. This also had a cover and inside were found a few fragmentary remains of human bones. (L. 93 cm., W. 42 cm., H. 30 cm.) As I have said before (page 18), this large oval type of larnax is not likely to be later in date than the M. M. I period.

The small chest of Pl. XII, No. XVII, c, bears a drip pattern in white instead of the black paint that is commonly used for this design. The white paint is of that yellowish quality so characteristic of the E. M. III period and quite different from the white employed by the Middle Minoan potters. Thus it is possible that the chest is really of E. M. III date, which would make it somewhat earlier than the others of this group. It contained no objects with the exception of very fragmentary skeletal remains. Like No. XVII, a, it had been placed in the ground in an upright position. (H. 28 cm., L. 40 cm., W. across top 24 cm.)

Larnakes appear so rarely in early deposits that it is curious to find three of them together as in this group. In the Early Minoan and Middle Minoan cemeteries of Mochlos and Pseira no larnakes were found and at Sphoungaras the only one which came to light was of the square type of Pl. XII, No. X, a. (Sphoungaras, p. 34.)

Near this group a fourth chest, type of Pl. XII, No. XVII, c, in coarse red clay came to light. This example, the clay of which was badly rotted, showed no traces of a painted design.

The following jars belonged to no well defined groups.

XVIII. This jar, Pl. XVII, No. XVIII, is a badly preserved example of the transition between the M. M. III and L. M. I periods. The body is divided into broad zones of dark paint worked out in white, alternating with zones filled with ripple pattern in dark paint on a light ground. The dark zones on the shoulder and middle of the jar bear spiral designs in white and on the dark band around the base are the traces of a wreath of white leaves.

XIX. A small jar of probably M. M. I or III date, Pl. XX, No. XIX. It seems to belong to the same general class of Middle Minoan jars as that shown in Pl. VIII, No. VIII.

XX. This jar, Pl. XX, No. XX, is evidently a somewhat later example of the type of jar shown in Pl. I, No. I, a. In shape it is more akin to the M. M. III and L. M. I jars of Pl. XIII, No. XI, b, and No. XII, a, and Plates VI, IX and X. On the other hand, the design is evidently derived from the motive which so frequently occurs on jars of the M. M. I period. (See Plates VII and XI.) On the whole, it seems reasonable to assign it to some time early in the M. M. III period.

XXI. This jar is shown in Pl. XX, No. XXI, a, and belongs to much the same date as the one just described. In fact, the remarks which apply to No. XX apply equally well to No. XXI, a.

Near this jar lay a pithos of the type of that shown in Pl. II, No. II, a, containing two clay cups, one of which was unpainted. (Gournia, Pl. II, No. 17.) The other cup is the one shown in Pl. XX, No. XXI, b. The design of spirals and bands is in white paint on a black ground. The surface is much worn. This cup belongs to the M. M. III or L. M. I period.

XXII. This jar which is shown in Plate XXI is one of the most beautiful from the entire cemetery. The simple yet

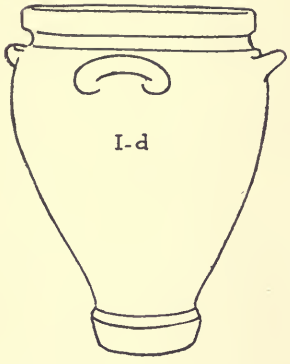
very decorative wreath-like patterns in white on the black body paint of the vase date it without question to the M. M. III period. The treatment of the design is more finished and perhaps more conventional than is the case with the other painted jars from this cemetery. Nevertheless it has a quality which makes one feel that in the M. M. III period the Minoan civilization had reached or was about to reach the acme of its development.

There are, of course, many more jars from the Pachyammos cemetery but for the most part they are either unpainted or covered with the ordinary drip pattern. I regret to say that I have been obliged to publish this report without including illustrations of all the small cups and vases found with the jars and also without giving the exact dimensions of the jars themselves. The failure to include these is owing to the disturbed state of affairs now existing in Greece which has prevented my returning to Crete for the present. As the smaller vases are quite without interest or artistic merit, it has really mattered very little whether they were illustrated. In so far as it is possible I have given references to similar types of cups and vases which have been found on other sites.

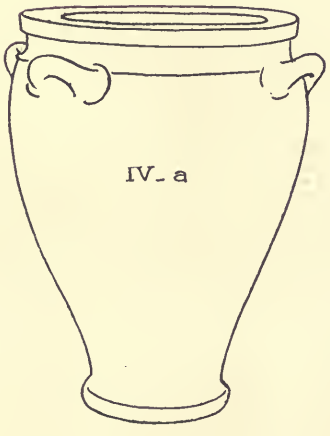
In height the jars range from 40 to 90 centimeters. One jar was found which was a meter high, but this was unusual. The greater number of the painted jars are from 40 to 60 centimeters in height. The meter rule which appears in Plates V, VII, XVI and XIX shows the relative size of the jars in these groups.

I have to thank both Sir Arthur Evans and Dr. Duncan Mackenzie for their helpful suggestions, and also Mrs. Dohan (Miss Edith Hall), who has been kind enough to undertake the work of proof-reading.

PLATES


I-d

III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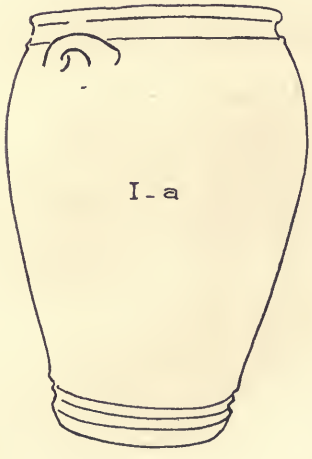
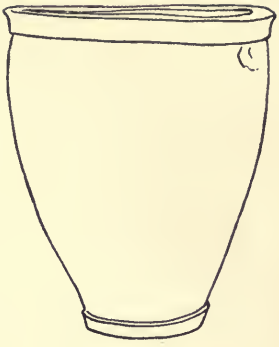
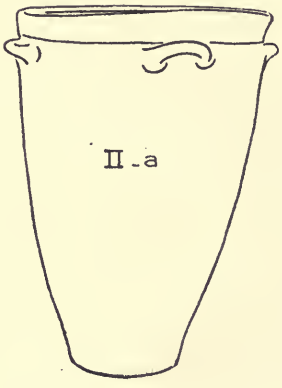

I-a

JARS OF VARIOUS PERIODS

XIII-b

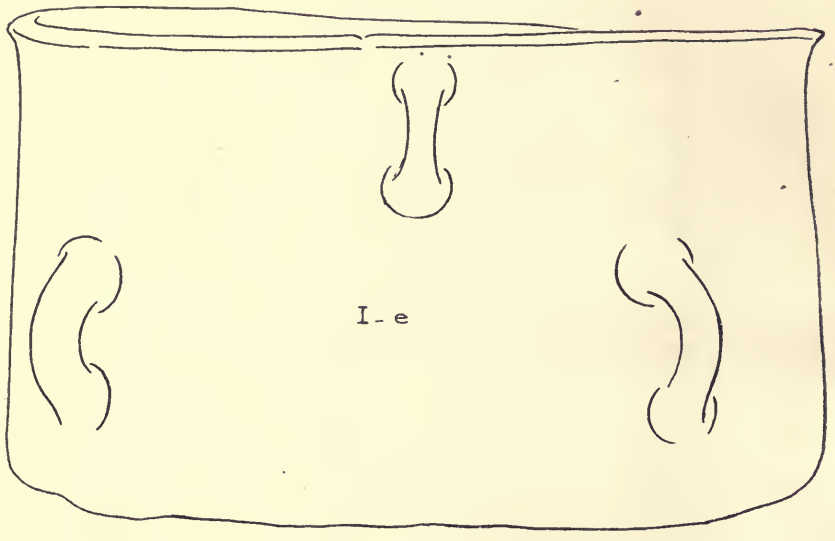


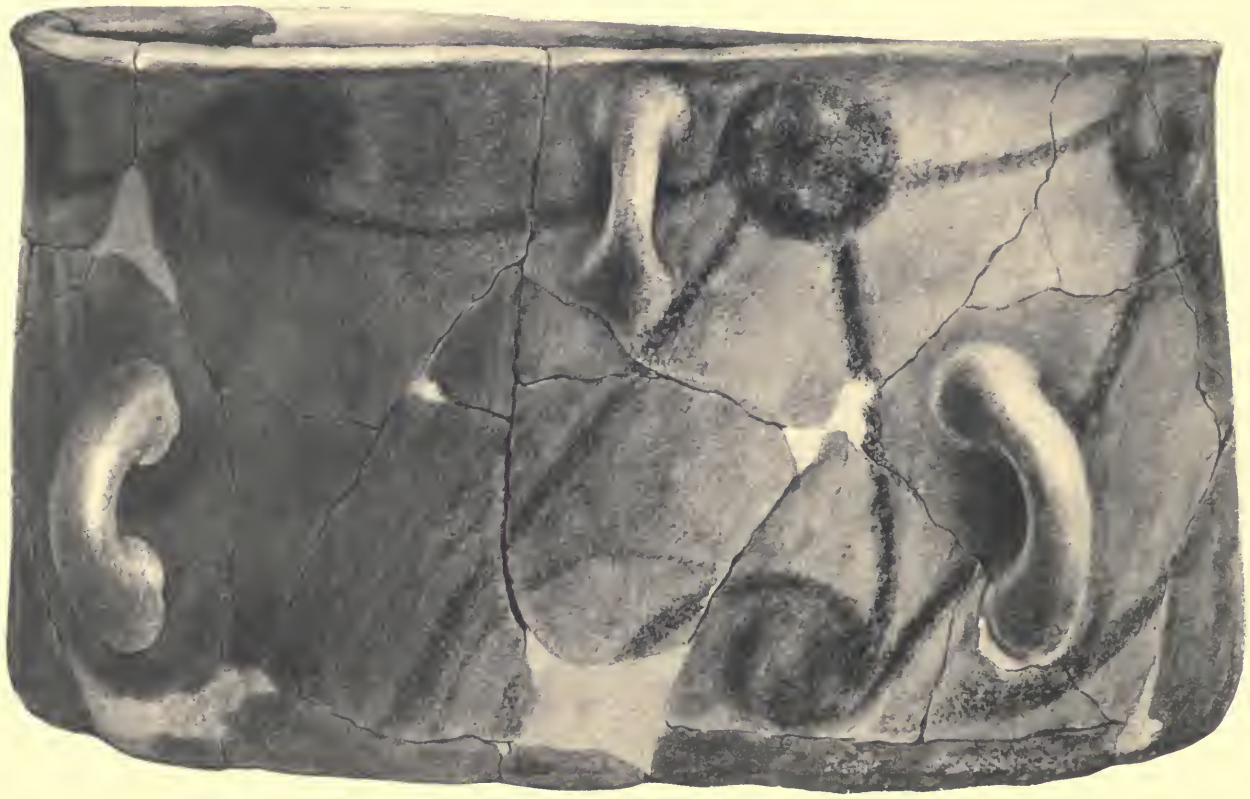
VI-a


II-a

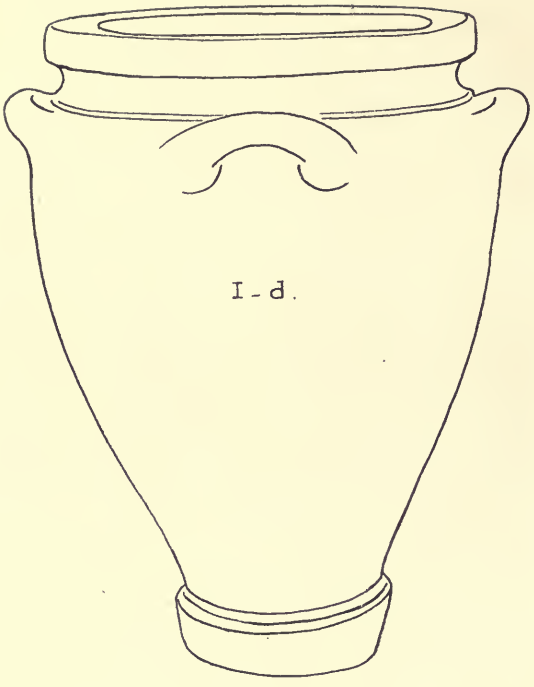
I-b

VESSELS OF VARIOUS PERIODS


I-e

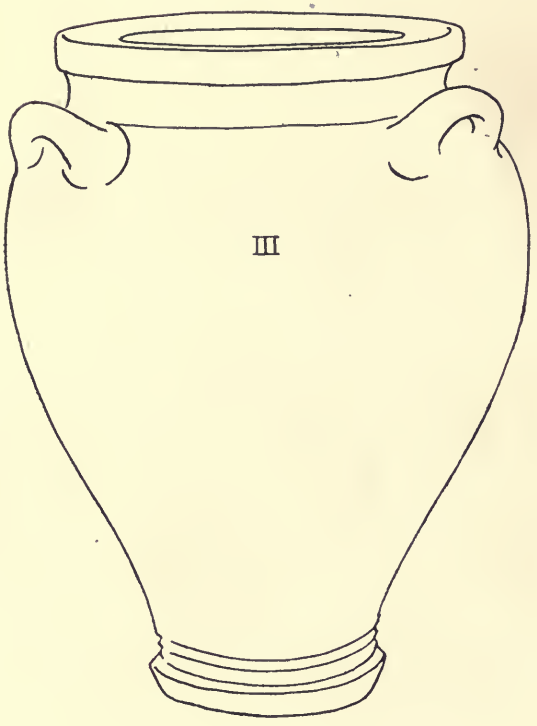


LARNAX, M. M. I PERIOD


I-d.

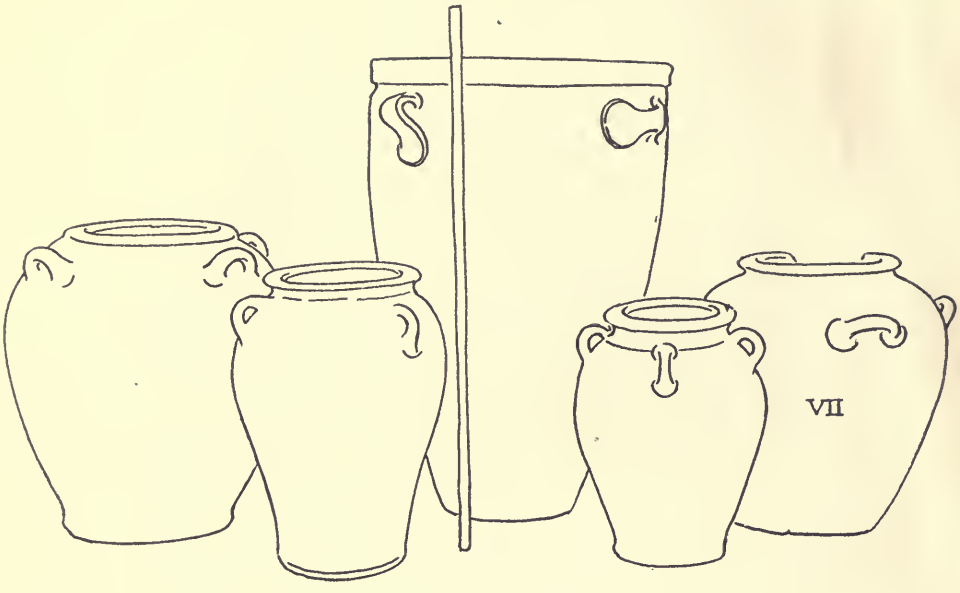
JAR, M. M. III PERIOD

GROUP OF JARS, M. M. III PERIOD



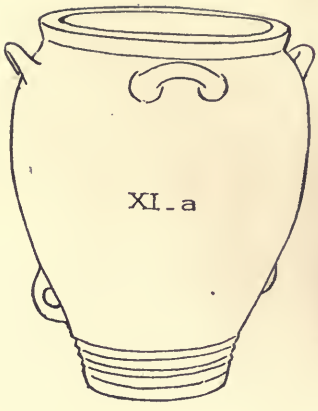
III

JARS OF TRANSITIONAL STYLE, M. M. III—L. M. I PERIODS


VII

JARS OF VARIOUS PERIODS

VIII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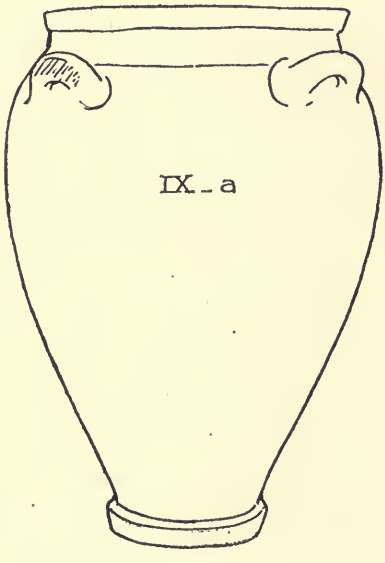
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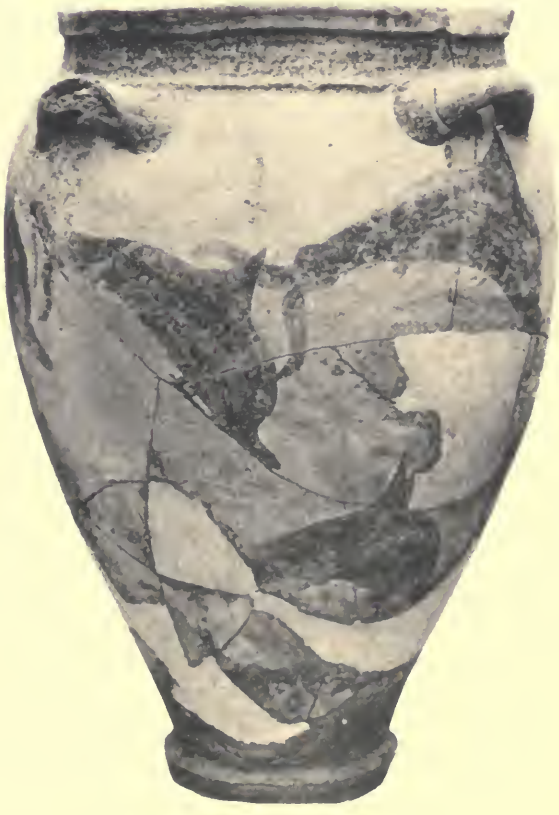
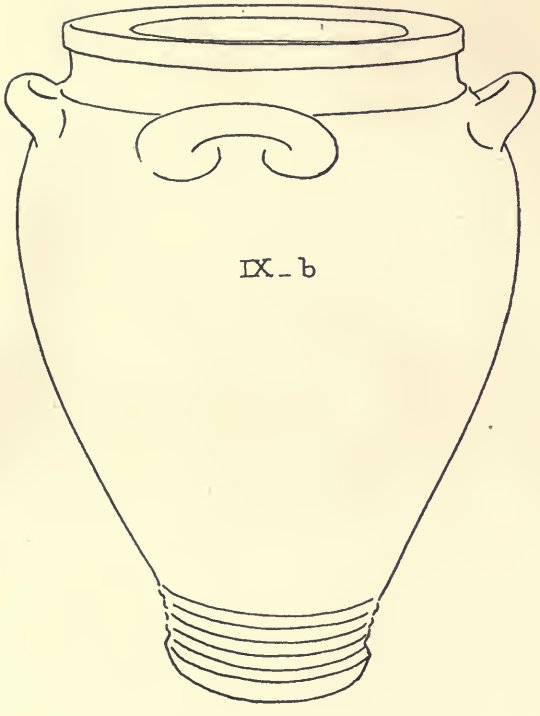
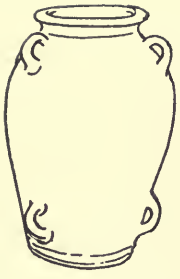


JARS OF TRANSITIONAL STYLE, M. M. III—L. M. I PERIODS

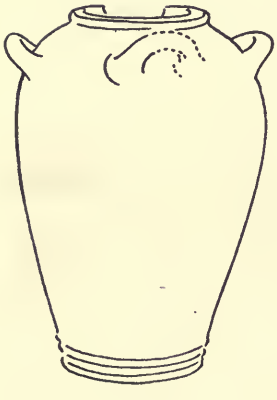
VASE OF TRANSITIONAL STYLE
M. M III - L M. I PERIODS

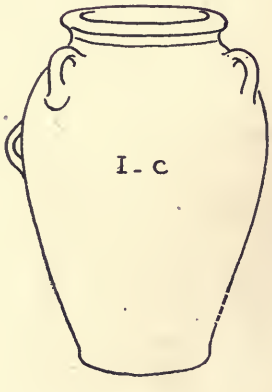

IX_b

JARS OF TRANSITIONAL STYLE. M. M. III–L. M. I PERIODS



XI-c

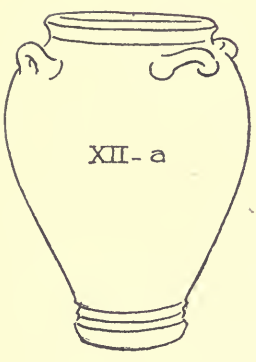



I-c

JARS OF E. M. III PERIOD AND M. M. I PERIOD

XV-a
IX-c
XVII-b
XVII-c
X-a

OBJECTS FROM VARIOUS TOMBS.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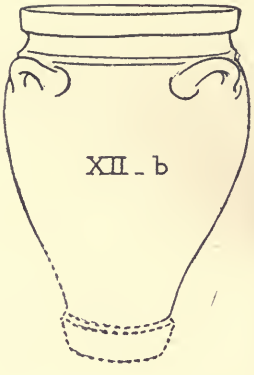
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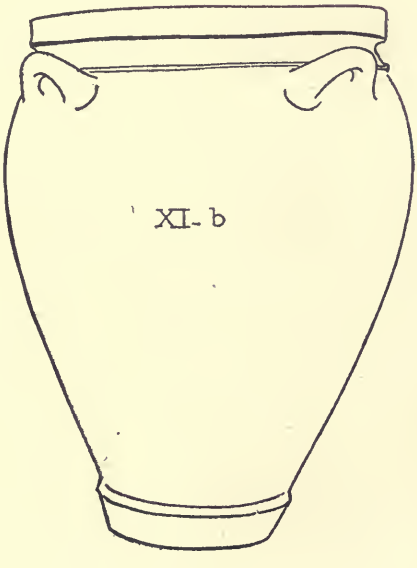
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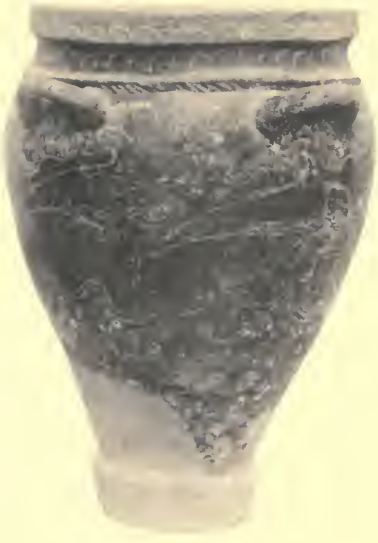
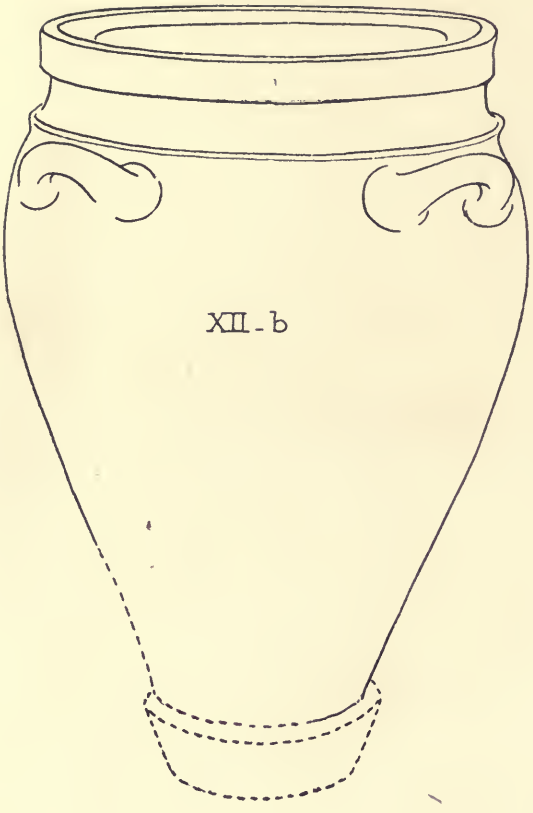
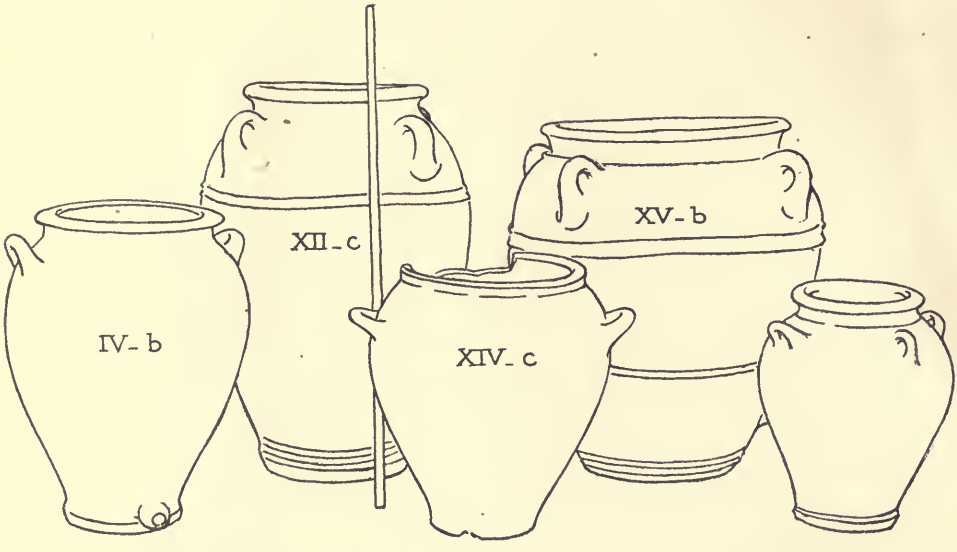


JARS OF MIDDLE MINOAN PERIOD

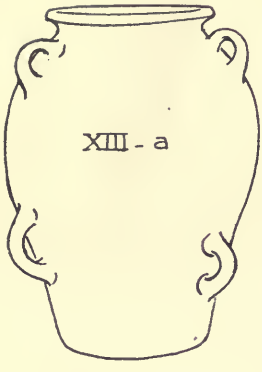

XII-b

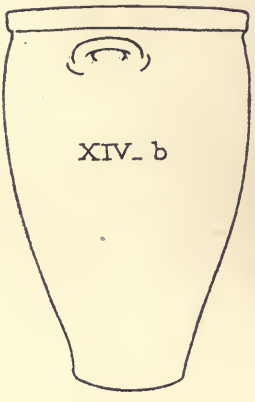
JAR, M. M. III PERIOD

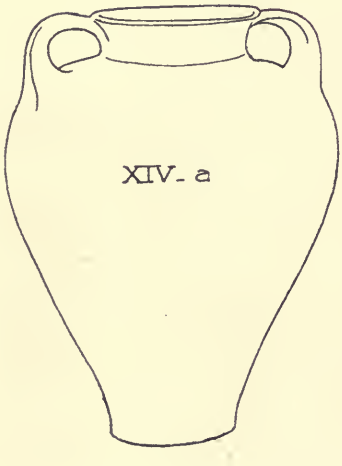
FRESCO FROM KNOSSOS, M. M. III PERIOD.


IV-b
XII-c
XIV-c
XV-b

JARS OF VARIOUS PERIODS


XIII - a


XIV - b


XIV - a

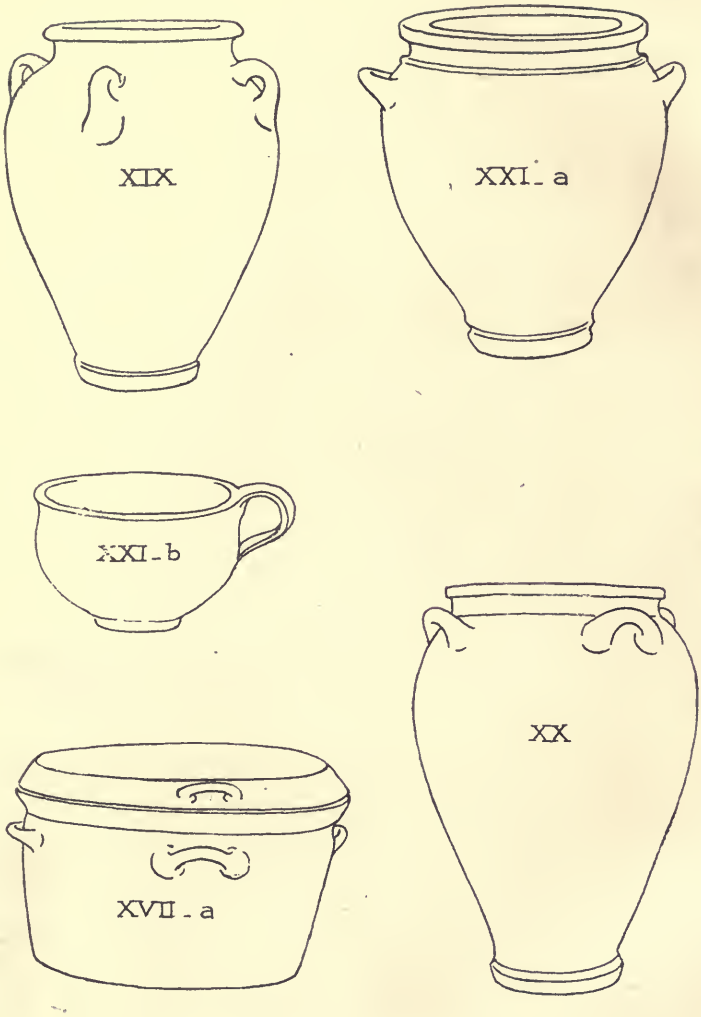
XVIII

JARS OF TRANSITIONAL STYLE, M. M. III—L. M. I PERIODS

VASE OF TRANSITIONAL STYLE
M. M. III - L.M. I PERIODS

XVI

JARS OF VARIOUS PERIODS


XIX
XXI_a
XXI_b
XX
XVII_a

VESSELS, M. M. III PERIOD

XXII.

JAR, M. M. III PERIOD

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3 3125 00839 0904